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ESSAYS,

FOR WHICH
The Society for the Encouragement of Arts,
Manufactures, and Commerce, adjudged
the Premiums of

GOLD MEDALS.

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G.R. III
BR. MUS.

K. Young (A)

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ESSAYS
ON THE
MANAGEMENT OF HOGS,
AND THE
CULTURE OF COLESEED,
INCLUDING
EXPERIMENTS.

by Arthur Young

THE SECOND EDITION,
With ADDITIONS.

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G.R. III.
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ESSAY I.

G.R.III
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AN

ESSAY

ON THE

MANAGEMENT OF HOGS;

INCLUDING

EXPERIMENTS

ON

REARING AND FATTENING THEM.

BR. MUS.

Part of a Reſolution of the Society for the Encouragement of Arts, Manufactures, and Commerce.

——" That Mr. *Young* be deſired
" to publiſh his Account of rearing
" and fattening Hogs, with ſuch Ad-
" ditions and Remarks as he ſhall
" think proper."——

PREFACE.

IT was my conſtant cuſtom, during five years that I farmed in *Suffolk*, (and has been ſo ſince) to regiſter, in a regular manner, all the experiments I made;—and, from the attention I gave to ſuch matters, every common crop I raiſed became experimental; and all the ordinary management of the buſineſs I found as ſuſceptible of minute calculation, as the trials I pur-

I purpoſely made. This attentive method of conducting a farm, which can only be executed by a perſon who lives in what may be called abſolute obſcurity, enabled me to regiſter near two thouſand original experiments, upon a vaſt variety of ſubjects.

Among others, Hogs demanded particular attention; and will, in all farms properly conducted, form a principal branch of rural œconomy. I made numerous trials on feeding and fattening them, and with many articles of food not commonly uſed.

The Society for the Encouragement of Arts, Manufactures, and Commerce, offered a premium of twenty pounds, or a gold medal, for the beſt account of rearing and fattening them. In conſequence of that offer, I ſent them a ſeries of trials, as a candidate for their medal, and have been honoured with it.

The account I ſent was incorrectly and ſurreptitiouſly publiſhed, which renders a perfect edition of it highly neceſſary; not only to my own reputation, but in defence of their adjudication of the premium. It is now, by their deſire, preſented to the public, with the addition of ſuch general obſervations as are neceſſary to elucidate the experiments.

Theſe trials are few, in compariſon to the number I made and regiſtered; but a certain brevity, I apprehend, is requiſite in eſſays that are to be read at a public meeting: this induced me to lay before the Society but a part of what I tried, a circumſtance that ſhould apologize for the many imperfections to be found in this ſketch.

OF THE MANAGEMENT OF HOGS.

THE importance of this animal to the farmer is not ſufficiently known in every part of *England*; there are many dairies that do not maintain one tenth of the ſwine they might, with proper management.—

Several garden roots are raiſed in large quantities, without being applied to feeding hogs;—and clover is cultivated, in many counties, upon the largeſt ſcale, without its utility for the ſame uſe being the leaſt known. No perſon, who has tried many experiments in this part of rural œconomics, can fail regretting that ſo many farmers ſhould neglect a conduct that adds ſo much to the good of the public, as well as to their own profit.

There are two principal objects in the rearing and fattening hogs; *firſt*, to make the greateſt advantage of a dairy; and, *ſecondly*, to ſubſtitute ſome other food in the place of that which ariſes from cows, when none are kept.

It is the practice of ſeveral counties to uſe the ſkim-milk, butter-milk, and cheeſe-whey, in *fattening* hogs. This is a moſt pernicious cuſtom: that food, for ſuch a uſe, it is every where known, has twenty ſubſtitutes, *viz.* peaſe, beans, buck-wheat, barley, *&c. &c. &c.*; but it is not ſo generally known, that pigs may be *reared* without cows. It is agreed, that the dairy food is excellent for the latter purpoſe.

For this reaſon, I ſhall venture to propoſe a different conduct, and with the greater readineſs, as I have found it, by experience, to be more profitable than the common management. The dairy, upon this improved ſyſtem, ſhould be applied only to rearing pigs, and feeding ſows which have young. But this, at once, opens a larger proſpect of the whole management of a farm.

The ſows and weaned pigs ſhould evidently be proportioned, in ſuch a manner, to the number of cows in milk, as to conſume all the dairy food without waſte. And other ſorts of food provided for the keeping ſows that have no pigs,—hogs half—three-fourths—full grown—and fattening ones.

The practice of ſome counties, as well as the annexed experiments, prove that clover is a moſt capital object in *keeping* all theſe ſorts of ſwine; but thoſe writers, who aſſert that it will completely fatten them, go much too far. There is no ſort of cattle in a farm that require more attention than hogs; any method, therefore, that ſimplifies the management, muſt be peculiarly valuable.

Hogs that are a quarter (or upwards) grown, may be abſolutely confined to a clover field, until it is neceſſary to ſow wheat: nine tenths of *Britain* will doubt this fact, but I have repeatedly experienced the truth of it. The fences, it is unneceſſary to add, muſt, in this ſyſtem, be incomparably good;—which neceſſity, I apprehend, is a particular merit in a mode of huſbandry; for a conduct that forces the farmer to have excellent fences, is, ſo far, of great utility. It is alſo requiſite to add, that there muſt be a pond in the field, which never fails. In a good crop of clover, well fenced and watered, ſwine of this ſort may be locked up from the middle of *May* to *Michaelmas*; and no conſumption of the clover will pay the farmer better: I ſhall add an experiment or two to prove this aſſertion; I could inſert many, but a certain brevity is requiſite in ſuch ſlight eſſays as theſe.

I have found lucerne to be equal, and in ſome years ſuperior to clover, for this uſe.—Sainfoine is alſo of excellent utility; but ray-graſs and burnet, will not by any means do. Natural paſtures, with waſh, are a good ſubſtitute; but never will be found to equal the artificial graſſes.

But in making the greateſt advantage of a dairy, we muſt not confine ourſelves to the ſummer-keeping alone; proviſion muſt be made for winter-feeding ſuch hogs as do not require aſſiſtance from the dairy.

The following experiments will prove, that carrots, parſnips, beets, and potatoes, are of admirable uſe in feeding pigs that have been reared;—they will keep the hogs that are taken out of the clover in excellent order, and even fatten them—and maintain, to vaſt advantage, ſows that have no pigs.

By this general ſyſtem of management it appears, that hogs are to be maintained the year through upon clover and theſe roots—and recourſe had to the dairy only for aſſiſtance in feeding ſows that have pigs, and in rearing their young.

It muſt be extremely evident, that, with this conduct, the number of ſwine maintained on a dairy farm may be prodigious—the number of cows point out the number of ſows and pigs; and theſe again muſt proportion the number of acres applied to the production of clover and roots. Thus the whole chain of crops is connected, and each field the ſupport of the other.

The *ſecond* object, in the management of ſwine, is the ſubſtituting ſome food, in the room of a dairy, for rearing pigs; upon ſuch farms as keep no cows, this is an object of very great importance, as there are numerous extenſive tracts of country that will produce clover in very great perfection, and alſo many ſorts of roots, but where it is either unprofitable to keep cows—or only advantageous to ſuckle them.

The reaſon I before gave, *viz.* keeping this ſketch in due bounds, prevents the inſertion of numerous experiments, which I formed for the particular determination of this point: I found from repeated trials, that carrots and parſnips will *wean* pigs of a proper age, almoſt as well as milk;—that is, in ſuch a degree of perfection, as to render the keeping a large number of hogs, upon that dependance, extremely adviſeable to any farmer, whoſe buſineſs or ſituation may prompt him to do it; and other experiments aſſured me, that ſows, with the moſt numerous litters, may be maintained to great profit in the ſame manner. Potatoes, and red beets, I likewiſe found of very great uſe for the ſame purpoſe.

It may not be improper here, to conſider the conſequence of enabling the farmer to keep large ſtocks of ſwine, by means of roots, ſo extremely productive as thoſe I have mentioned: there are no ſoils, but what, with proper management, will yield ſome or other of them; and the crops are immenſe.—The number of ſwine to be fattened or fed by an acre of carrots or potatoes, would ſurpriſe thoſe who have never formed any experiments upon the point: and the excellency of the huſbandry, in general, ſhould plead powerfully with our farmers to adopt it upon this principle. Theſe roots are all *fallow crops*, that is, they are of the ſame advantage to the ſoil as a year of fallow—and, if cultivated in the manner they ought to be, much ſuperior to any fallow; for this reaſon, their culture is beneficial to the land, and a very material method of bringing it into excellent heart. Their application to feeding ſwine is, alone, ſufficient to improve a farm that is almoſt worn out, ſince it cannot be conducted without raiſing large quantities of the very beſt dung.

Now, the conſequences of adopting the culture of vegetables, that clean and ameliorate the ſoil—and in their uſe infinitely enrich it, muſt be obvious to every reader. It is no exaggeration to aſſert, that the beſt ſoils may be improved, and the pooreſt converted into good ones by this conduct;—and I can aſſert, on experiment, cheaper than by any other method. I have found, that 90 hogs will, in fatting, yield as much manure as is worth thirty pounds on the ſpot—and where ſtraw, ſtubble, or fern are to be had very cheap, to a much greater amount.

It is from theſe ſeveral conſiderations, that I apprehend the following experiments may be of real utility to thoſe who have dairies;—to thoſe who keep cows, but apply them to ſuckling;——to thoſe who have no cows, but are willing to keep ſwine: and, laſtly, to thoſe, who, on any ſoils, are deſirous of improving them.

EXPERIMENTS
ON
REARING AND FATTENING
OF
HOGS.

EXPERIMENT I.

THE firſt week in March, 1765, thirty pigs, juſt weaned, were drawn from forty-three, that they might be all of a ſize; they were then diſtributed into five lots, equally divided; I do not think there was half a crown difference in the value of them; and then fed with diſtinct ſorts of meat. Each five had a ſtye to themſelves, and all were kept clean, and equally littered with ſtraw.

Lot N° 1. Was fed with pollard mixt with water.

2. With pollard, mixt with ſkim milk.

3. With boiled turnips, and pollard mixt with the turnip-liquor.

4. With boiled potatoes and water.

5. With ſkim milk.

They were kept with this food thirty days. I then turned them out of their ſtyes (none had died), and viewed them with a perſon particularly ſkilled in hogs; the reſult was,

N° 2. The beſt,—pollard and ſkim milk.
5. Next beſt,—ſkim milk.
1. Next,—pollard and water.
3 and 4.—Equal.

It appears from hence, that pollard and milk are the beſt food; milk alone, very good. The other articles advantageous (for none of the pigs were in bad order), though not equal to the former.

EXPERIMENT II.

At the ſame time with the preceding trial, four lots of pigs, that had been weaned three months, were equally drawn from my farm-yard, five in each lot. They were confined as before, each lot to a ſtye, and cleaned at the ſame time: their food was as follows:

N° 1. Bran mixt with ſkim milk.
2. Boiled potatoes.
3. Boiled carrots.
4. Raw carrots.

They were kept to this food thirty days; I then viewed them as before, with the ſame perſon.

N° 3. Much the beſt,—boiled carrots.
1. Next, — bran and ſkim milk.
2. Next, — boiled potatoes.
4. Worſt, — raw carrots.

Boiled carrots appeared very clearly on this trial to be an admirable food for hogs of this age; *ſo good*, that I determined to make uſe of this hint in future. Boiled potatoes appear alſo a good food. Raw carrots keep them, I think, better than the farm-yard, but were not equal to the other kinds

EXPERIMENT III.

January 1, 1766: forty pigs, that had been weaned about a fortnight, were draughted very equally into eight lots, and confined each to a ſtye; they were cleaned out, and littered always on the ſame day, and equally. Their food was as follows:

N° 1. Raw carrots.
2. Boiled ditto.
3. Boiled potatoes.
4. Pollard mixt with ſkim milk.
5. Ditto mixt with boiled turnips.
6. Malt-duſt mixt with ſkim milk.

7. Skim milk.
8. Ditto, and half carrot water boiled.

They continued upon this food the month of January, and were then viewed; the reſult was as follows:

N° 4. The beſt,—pollard and milk.
7. Next, — ſkim milk.
2. Ditto, — boiled carrots.
3. Ditto, — boiled potatoes.
5. Ditto, — pollard and boiled turnips.
8. Ditto, — ſkim milk and carrot water.
1. Ditto, — raw carrots.

6. The worſt,—two dead, malt-duſt and ſkim milk.

Pollard and milk hitherto maintain the ſuperiority; boiled carrots excellent; the reſt almoſt equal, except the malt-duſt, which is evidently bad.

EXPERIMENT IV.

In the beginning of June, 1766, I confined ſixty hogs, half and three-fourths grown, in my hog-yard (a pond's mouth in it), and fed them fourteen days with clover mown freſh every day; it was given in their troughs, with racks acroſs, to prevent their ſoiling it. They fell off in their looks in about four days, and grew worſe and worſe, ſeveral dying. At the end of that time, I gave them ſome malt grains and waſh every day, for a few days longer; but the effect was no better, more dying. They were then all turned into the clover field, from whence it had been taken, and confined conſtantly to it for ſome time. Not one more died, for all throve greatly. It will not perhaps be impertinent here to add, that I never found any method of uſing clover more beneficial than thus applying it to the feeding of hogs.

EXPERIMENT V.

At the time of the preceding experiment, eight hogs, of equal ſize, were divided into two lots, and confined to two ſtyes. Four were fed fourteen days on clover mown, and the other four on lucerne mown; they were given at the ſame time, and in the ſame ſtyes. At the end of that time they were viewed attentively: both were bad, but the clover ones much the worſt, one near dying.

EXPERIMENT VI.

The month of December, 1766, twenty pigs, that had been weaned a month, were draughted into four parcels, and kept that month, ſeparately, in the following manner.

N° 1. Boiled carrots.
2. Boiled potatoes.
3. Boiled turnips.
4. Boiled cabbages.

At the end of the month they were turned out and viewed attentively. The reſult was,

N° 1. The beſt,—boiled carrots.
2. Next, — boiled potatoes.
3. and 4. Equal,—all nearly dead

Carrots continue in every trial ſuperior to all common vegetable food. I am not at all ſurpriſed at the ill ſucceſs of turnips and cabbages.

EXPERIMENT VII.

In June, 1767, I draughted from my hogs twenty that were of a perfect equality in ſize and appearance; they were even half grown; marked them into four lots, and turned

N° 1. Into my clover field.
2. ——— lucerne ditto.
3. ——— ſanfoine ditto.
4. ——— burnet ditto.

In another month they were drove up and viewed; the reſult was,

N° 2. The fineſt,—lucerne.
1. Next, —— clover.
3. Next, —— ſanfoine.
4. Very indifferent,—burnet.

The reſult of this experiment I think deciſive in favour of lucerne, and likewiſe in the proportionable merit of the other articles. But this muſt be farther enquired into in future experiments.

EXPERIMENT VIII.

In January, 1768, three ſows, very much alike in all reſpects, pigged, one ſeven pigs, another eight, the third ſix, in about a week. I ordered them to be fed diſtinctly.

N° 1. With raw carrots.
2. With ſkim milk.
3. Common waſh of the better ſort.

In a fortnight they were viewed. The pigs of

N° 2. Were the fatteſt,—ſkim milk.
1. Next, ——— raw carrots.
3. Worſt, ——— common waſh.

This experiment is not deciſive, for reaſons too tedious to mention; but yet the reſult ſhould urge the attentive to vary theſe experiments, that certainty may at laſt be known.

OBSERVATIONS.

The general reſult of theſe trials is drawn into one view in a very few words.

Milk mixt with pollard appears to be, of all food, the moſt proper for rearing of pigs.

Milk alone is good.

Boiled carrots, excellent, and fully proved to be ſufficient for any farmer to depend on, who does not keep a good dairy.

Potatoes are alſo a very good food.

Turnips, cabbages, and malt-duſt, very bad.

Of green food, that which is growing, is clearly the beſt; mown, and given in ſtyes, it is pernicious.

In the ſield, lucerne is ſuperior to all the reſt. Clover comes next, then ſanfoine: all theſe three are good, Burnet laſt, and bad.

Experiments on fattening of Hogs.

EXPERIMENT I.

In February, 1765, I weighed a buſhel of white boiling peaſe, the weight was ſeventy-one pounds, the price 4 *s.* A buſhel of pollard, twenty-five pounds one quarter, price 8 *d.* A buſhel of bran, fifteen pounds one quarter, price 6 *d.* Quere, which is the cheapeſt food for hogs, ſeventy-one pounds at 4 *s.* or twenty-five pounds at 8 *d.*? The peaſe are ſix times the price of the pollard, and only three times the weight.

THE TRIAL.

I drew four pigs from my herd, of equal appearance, divided them into two lots, and weighed them alive.

		S.	P.
Nº 1.	weighed	6	5
2.	——	6	7
3.	——	6	3
4.	——	6	8

Lot. 1. contained the hogs Nº 1 and 2, weight 12 S. 12 P.

Lot 2. contained the hogs N° 3 and 4, weight 12 S. 11 P.

The equality of theſe weights is remarkable; but, in an hundred hogs, I do not think my bailiff would miſtake two pounds in half a dozen ſtone.

Lot 1. was confined to a ſtye, and had eight buſhels of peaſe given them, weight 565 pounds, price 1 *l.* 12 *s.*

Lot 2. was confined to a ſtye, and had forty-eight buſhels of pollard given them, weight 1212 pounds, price 1 *l.* 12 *s.* Both the pollard and peaſe were given dry with water in a trough. Each lot was weighed, as ſoon as the food was done. The reſult was,

	S.	P.		
N° 1. weighed	19	2		
2. ———	21	5	S.	P.
Superiority of N° 2. is			2	3
Add 1 pound, the firſt inequality			0	1
Total ſuperiority			2	4

A ſingle experiment muſt not be ſuppoſed to decide this matter, but future ones may determine it.

EX-

EXPERIMENT II.

In January, 1766, I drew from the herd ten hogs, as equal in ſize as poſſible, and weighed them alive in five lots.

		S.	P.
No 1.	weighed	13	4
2.	———	12	6
3.	———	13	0
4.	———	12	11
5.	———	13	1

A nearer equality than this, in matters that can neither be added to nor diminiſhed, can ſcarcely be expected.

N° 1. was fatted with white peaſe, that weighed ſixty-ſix pounds per buſhel; the price 30 *s.* per quarter.

N° 2. with pollard, that weighed twenty-two pounds per buſhel; the price 9 *d.* per buſhel.

N° 3. with buck-wheat, that weighed forty-ſeven pounds per buſhel; the price 2 *s.* 3 *d.* per buſhel.

N° 4. with boiled potatoes, that weighed fifty-four pounds per buſhel; the price 2 *s.* per buſhel.

No 5. with boiled carrots, that weighed raw fifty-five pounds per buſhel; the price 1 *s.* 1 *d.* per buſhel.

I thought it beſt to fix on a given ſum, as proper to fat each hog. The people I conſulted were of opinion, that eight buſhels of white peaſe were neceſſary to fat one ſuch hog well. This I accordingly fixed on as my criterion. The account of the expence therefore ſtood thus:

	l.	*s.*	*d.*
No 1. Peaſe, 16 buſhels -	3	0	0
2. Pollard, 80 buſhels -	3	0	0
3. Buck-wheat, 27 buſhels	3	0	9

4.

		l.	s.	d.
4. Potatoes, 28 buſhels,	2*l.* 16*s.*			
Labour and coals,	- 4			
	——	3	0	0
5. Carrots, 49 buſhels,	2 13 2			
Labour and coals,	6 10			
	——	3	0	0

Each lot was weighed as ſoon as the food was done. The reſult was as follows:

		S.	P.
N° 1.	weighed	27	6
2.	———	27	9
3.	———	29	13
4.	———	25	7
5.	———	31	0

It is evident from this experiment, that carrots boiled are ſuperior to any other food. I did not expect that potatoes would be ſo much inferior; but I have found from divers other trials ſince, that it is requiſite to mix the meal of ſome kind of corn with them. Pollard in this trial, as in the laſt, is ſuperior to peaſe.

In January, &c. 1766, having a large number of hogs fatting, I purchaſed various kinds of food for them, which were given them, ſome alone, and others mixt together, to diſcover which fatted them in the cheapeſt and quickeſt manner; this being, in the opinion of ſome, a fairer way of diſcovering the nature of every kind of food, than the other method.

EXPERIMENT III.

Seventy-ſix hogs, from ſeven to fourteen ſtone lean, eat in ſeven days, after nine days fatting,

	l.	*s.*	*d.*
17 quarters 5 buſhels, pollard - - - -	5	17	10
1 buſhel, beans - -	0	4	0
7 quarters 2 buſhels, peaſe, ground - -	10	17	6
3 quarters 5 buſhels, or 2 *l.* 7 *s.* per diem.	16	19	4

EXPERIMENT IV.

Eighty-eight hogs eat in twelve hours,

Q.	B.		l.	s.	d.
1	6	buck-wheat - -	1	11	6
0	2	peaſe-meal - -	0	8	0
1	3	bran - - -	0	5	6
3	3	— —	2	5	0

EXPERIMENT V.

The ſame hogs eat next day,	l.	s.	d.
2 qrs. of white peaſe, -	3	0	0

EXPERIMENT VI.

The next day,	*l.*	*s.*	*d.*
1 quarter of peaſe - -	1	10	0
2 buſhels of buck-wheat	0	4	6
	1	14	6

From this day's quantity, I ſhould think they either did not like the buck-wheat ſo well as the peaſe, or the buck-wheat is a much more filling food; but two quarters of peaſe were the greateſt quantity of that food they eat in one day, during the whole fatting.

EX-

EXPERIMENT VII.

The next day they eat	*l.*	*s.*	*d.*
2 quarters of buck-wheat	1	16	0

This day's fatting is in ſome meaſure a proof that buck-wheat is an agreeable food to them, ſince they eat as large a quantity as of peaſe; but they ought to have eat as much more of it, if the proportion lies in the weight and price.

EXPERIMENT VIII.

The next day they eat	l.	s.	d.
2 quarters and a half of peaſe meal, buck-wheat flour, and pollard mixed, the proportion 13 *s.* 4 *d.* per quarter - - -	1	13	4

EXPERIMENT IX.

The next ſeven days they eat

	l.	s.	d.
22 quarters and a half of the above mixture, at 13 *s.* 4 *d.* per quarter	15	0	0
Carry over	15	0	0

	l.	s.	d.
Brought over	15	0	0
1 quarter and a half of buck-wheat - -	0	18	0
7 buſhels of peaſe -	1	7	0
3 quarters and a half are 2 l. 9 s. per day	17	5	0

The quantity the hogs eat of this mixture, and their thriving extremely well with it, is a ſtrong proof that the different qualities of the ſeveral ſorts being finely incorporated in the mixture of their flour, contributed much to the forwarding of their fatting;

and the proportions ſhew that they eat more than when fed with one only.

EXPERIMENT X.

The next day they eat	*l.*	*s.*	*d.*
1 quarter of buck-wheat	0	18	0
7 buſhels of peaſe - -	1	7	0
	2	5	0

EXPERIMENT XI.

The next day they eat	*l.*	*s.*	*d.*
1 quarter 4 buſhels of peaſe - - - -	2	5	0

EXPERIMENT XII.

The next day they eat,	l.	s.	d.
1 quarter 4 buſhels of peaſe - - -	2	5	0
1 buſhel of buck-wheat	0	2	3
	2	7	3

EXPERIMENT XIII.

The next eighteen days they eat,	l.	s.	d.
24 quarters 1 buſhel of peaſe-meal - -	39	0	0
6 quarters of barley-meal - - -	7	4	0
Carry over	46	4	0

	l.	*s.*	*d.*
Brought over	46	4	0
1 quarter 1 buſhel buck-wheat flour - -	1	2	6
7 quarters 4 buſhels of pollard - -	2	5	0
1 quarter of bran - -	0	5	4
2 quarters 1 buſhel are 2 *l.* 15 *s.* per day.			
	49	16	10

The difference of two quarters and three and a half, in experiment IX, is remarkable, and ſeems to prove, that the hogs eat by weight and value, and not by meaſure: the quantities are very different, but the prices do not vary equally. N° 10, 11, 12, are *whole grain*, at forty-five pounds per day. *This* is all ground, and they eat ten pounds a day more; from which I conclude that the meal fattens much the beſt.

EXPERIMENT XIV.

The next day they eat,	*l.*	*s.*	*d.*
1 quarter 4 buſhels of peaſe-meal - - -	2	6	5

EXPERIMENT XV.

The next day they eat	*l.*	*s.*	*d.*
1 quarter 5 buſhels of peaſe-meal - -	2	10	4

EXPERIMENT XVI.

The next day they eat,	l.	s.	d.
1 quarter 7 buſhels of pease-meal - -	2	18	0

EXPERIMENT XVII.

The next three days they eat	l.	s.	d.
5 quarters 2 buſhels of peaſe-meal - -	8	2	9

1 quarter 4 buſhels is 2 *l.* 14 *s.* 3 *d.* per day.

EXPERIMENT XVIII.

The next day they eat,	l.	s.	d.
1 quarter 4 buſhels of peaſe-meal - -	2	8	0

From all theſe trials, it appears that the meal is better than the whole grain.

EXPERIMENT XIX.

In January 1768, I confined three hogs to different ſtyes, and fed them thus,

N° 1. with peaſe,
2. —— beans,
3. —— barley,

to ſee which pork was beſt and firmeſt. They were in every reſpect as equal as poſſible.

N° 3. The whiteſt fat, and firm, and well-taſted meat.

1. The next in whiteneſs, and equally firm.

2. Very dark and ill-taſted, but firm.

OBSERVATIONS.

It appears from theſe experiments, that pollard alone (at the preceding prices) is a cheaper food than peaſe alone.

That boiled carrots is much the moſt profitable food that has been tried.

That buck-wheat is a more profitable food than peaſe.

That ſeveral kinds of food mixed, are better than being given alone.

That the meal of any one, or of various kinds of grain, is better and more profitable than the whole grain, mixed or alone.

That peaſe and barley are a much ſweeter food than beans.

The above experiments are humbly ſubmitted to the Society, not as perfect, but rather as a mark of the Author's thor's wiſhes to be uſeful. He ſhall not be diſpleaſed to find that others have been more accurate and attentive than himſelf.

ARTHUR YOUNG.

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IN addition to theſe experiments, I ſhall add a few that were not inſerted in the preceding memoir.

I.

In January, 1766, twenty pigs, that had been weaned ſix weeks, were draughted into four parcels, and kept for three weeks upon the following articles of food :

N° 1. Boiled carrots.
2. —— parſnips.
3. —— red beets.
4. —— potatoes.

They were then viewed, and the reſult;

N° 1. The beſt.
2. The next beſt.
3. The next; very near equal to N° 2.
4. The worſt, but very good.

The difference between them but little.

Carrots, in this trial, appear to be ſuperior to the other articles——but not ſo much as to prove deciſive.

II.

In February, 1766, drew ſix lots of pigs, four in each—the equality very exact; and, confining them to ſeparate ſties, fed them in the following manner three weeks:

N° 1. Raw carrots.
2. —— parſnips.
3. —— red beets.

N° 4. Raw potatoes.
5. ——— Jeruſalem artichokes.
6. —— Turnips.

At the end of that time viewed them;

N° 1. The beſt; in good order.
2. } Next; equal: theſe alſo
3. } in good order.
4. and 5. The next; equal.
6. Three dead; and the other dying.

Carrots, parſnips, and beets are excellent food; potatoes and artichokes'

chokes, the ſame, though in a ſomewhat inferior degree: turnips wretched.

III.

In January, 1767, drew three lots of weaned pigs, and fed them a fortnight as follows:

N° 1. With boiled carrots.
2. ——— parſnips.
3. ——— beets.

Viewed them at the end of that time; the reſult,

N° 2. The beſt.
1. The next.
3. The laſt.

But all in good order. Parſnips, being ſuperior in this trial to carrots, contradicts, ſo far, the reſult of the preceding experiments; but a few trials muſt never be conſidered as deciſive. In all agricultural ones, the general averages are the points alone which carry conviction.

IV.

The 6th of January, 1767, confined ſix pigs, two months old, to a ſtye, ſtie, and fed them for ſix weeks with nothing but boiled Jeruſalem artichokes, and the common waſh that is given to lean hogs, as a trial to diſcover how far that root may be depended on for feeding ſuch pigs. The reſult was favourable; at the end of the time they were viewed, and found to be in good order;—not ſo well looking, as I have often had ſuch pigs kept on other meat—but well enough to ſhew that this food is a matter of much importance.

V.

Sowed common red clover with barley in the Spring of 1765, on two acres of wood-cock, brick-earth loam on a clay bottom, that yielded beans, horſe-hoed in 1764. In October 1765, manured it with thirty loads of compoſt, conſiſting of various proportions of farm-yard dung, town-manure, turf, ditch-earth, &c.

The fences around it were well repaired in the winter; and one, much worſe than the reſt, new made. The 12th of May I turned in thirty head of ſwine, conſiſting of ſows, large pigs, and hogs half and three-fourths grown: they took immediately to the clover, and in about a fortnight, all diſcovered by their looks how well the food agreed with them; there was a pond in the field, at which they drank perpetually, and of nights they laid all of a heap in a corner of the piece, under a thicket of buſhes; not making any attempts to get home, after walking the firſt evening once or twice around the border with that deſign. Finding that ſtock of hogs inſufficient to keep down the clover, more were added; and ſome kept in the piece till Michaelmas. The account of the expences and produce is as follows:

Expences.

	l.	*s.*	*d.*
Seed — — — —	0	10	9
Sowing — —	0	0	6
Manuring, at 20*d.* a load the manure, and the expence of carting it to the field — —	2	19	4
	3	10	7
Rent — —	1	14	0
	5	4	7

Produce.

	l.	*s.*	*d.*
Keeping 15 hogs 21 weeks at 3 *d.* — —	3	18	9
Ditto 12 ditto 12 weeks at 3 *d.* — —	1	16	0
Ditto 10 ditto 16 weeks at 3 *d.* — —	2	0	0
Ditto 5 ditto 10 weeks at 2½ - - -	0	10	5
Ditto 12 ditto 10 weeks at 2 *d.* — —	1	0	0
Carried over, -	9	5	2

	l.	s.	d.
Brought forward, -	9	5	2
Keeping 10 hogs 12 weeks at 1½ *d.* — —	0	15	0
	10	0	2
Expences — —	5	4	7
Profit, 2 *l.* 7 *s.* 9½ *d.* per acre	4	15	7

From the event of ſeveral other fields of clover this year, I am clear that no other uſe of it would have paid better than thus feeding it by hogs. A clear profit of forty-ſeven ſhillings per acre, after paying the expence of a good manuring, is conſiderable, and greatly preferable to the general profit by hay, the chance of ſeaſons taken into the account. Nothing can be clearer than the fact of hogs thriving excellently on clover—all theſe ſwine grew very faſt, and ſhewed by their looks how well the food agreed with them; and there is no animal that ſooner falls off in its appearance than a hog, when badly fed. Where therefore is the neceſſity of providing other ſummer food? Why conſume that food for thoſe hogs which clover will maintain, while ſows and pigs, and weaned pigs cannot be kept without it, ſuch as dairy-waſh, &c.

This is a ſyſtem of management that will enable the farmer to keep much larger ſtocks of cattle than the methods yet common in ſo many counties.

VI.

In the Summer of 1767, kept as many hogs of various ſorts in one acre of clover, ſown with oats after turneps, on a good gravelly loam, as came to 4 *l.* 8 *s.* at the above prices.

The hogs were in it from the laſt week in May to the middle of September, never at home. They throve extremely well, and no ſwine could look better.

Theſe trials, with many others, prove inconteſtibly that clover, *well fenced in*, with a pond in the field, is to be abſolutely depended on for the Summer-food of hogs, without any aſſiſtance: and that ſuch an application of the crop will pay as well, and probably better, than any other.

END of the FIRST ESSAY.

ESSAY II.

ON THE

CULTURE

OF

COLESEED.

67. COLESEED. For the beſt Account of the Manner of cultivating Coleſeed for the feeding Cattle and Sheep, and of the Application of it to that Purpoſe, with Eſtimates of the Expence, comparative Advantages, &c. verified by Experiments, to be produced to the Society before the firſt Tueſday in April 1769, a GOLD MEDAL.

AN

ESSAY

ON THE

CULTURE OF COLESEED.

INCLUDING

EXPERIMENTS.

To which the SOCIETY for the Encouragement of ARTS, MANUFACTURES, and COMMERCE, adjudged the Premium of a GOLD MEDAL.

LONDON:
Printed for W. NICOLL, N° 51, in
St. Paul's Church-Yard.
MDCCLXX.

EXPERIMENTS

ON

COLESEED.

THE trials I have made on this branch of culture, are not of that extent I could wiſh; but as they are accurate, and minutely regiſtered, it is apprehended they may be of uſe to others who are inclined to attempt larger undertakings. With this view the following experiments are ventured to the eye of the Society: it is hoped they will excuſe confined views, and a want (perhaps) of thoſe *reflections* and *obſervations*, which modern writers of huſbandry are famous for. The only object I ever had in matters of agriculture, is *experiment*. I inſert ſome of my trials on this vegetable, but ſhall not trouble the Society with many remarks; they muſt make their own way, for I am not one of thoſe who write ten obſervatory pages to one experimental period.

EXPERIMENT, N° I.

Culture, Expences, and Produce of half an Acre of Coleſeed, in two Diviſions,

1765.

COLESEED, where-ever I have remarked the cultivation, has been ſown for a crop of ſeed, as well as food of cattle, but often fed off with ſheep, and afterwards reaped for the ſeed. It is uſually ſown in the manner of turneps; but I never knew any hoed even by thoſe farmers that are niceſt with the latter crop. It was this circumſtance that firſt induced me to cultivate coleſeed; to diſcover if I could gain better crops than common (for ſheep) by means of a better than common culture.

The ſoil of this experiment is a looſe woodcock brick-earth, and under that a white clay, the field hangs a little to the north.

Culture.

The land received the firſt tillage in Autumn 1764. In March 1765 ploughed it again. In April again, and twice harrowed it. The ſecond week in May it had its fourth earth, and was again harrowed. The beginning of June another ploughing: and on the 23d it was all ſown, after a freſh ploughing, and harrowed in; the quantity of ſeed a pint and a half. The extreme dryneſs of the ſeaſon, which deſtroyed almoſt all the turneps in the country, rendered this crop much worſe than it would otherwiſe have been: the ſeed aroſe but indifferently and irregularly, in ſome perches many plants, and in others but few: reſpecting the grand diviſion into two equal parts, this irregularity was not great. The laſt week in July one half was hand-hoed in the manner of turneps, and the other half left as managed by the common farmers, that is, had nothing done to it. The hoes were ſmaller than turnep ones. Auguſt the 4th, this operation was repeated. The effect was very viſible in the ſuperior luxuriance of the crop.

It was left until February, the middle of which month, the diviſions were herdled; and forty ſheep turned into the commonly cultivated half. It laſted them exactly five days. They were then turned into the other rood, which laſted them five days. The field was then ploughed up.

Account of the common rood.

Expences.

	l.	*s.*	*d.*
Six ploughings, at 1 *s.* (the labour) - - - -	0	1	6
Four harrowings - -	0	0	1½
Seed - - - - - - -	0	0	4
Sowing - - - - - -	0	0	0¾
	0	2	0¼
Rent, tythe, and town-charges - - - -	0	4	3
	0	6	3¼

Produce

Produce.

	l.	*s.*	*d.*
Keeping 40 ſheep 2 days at 4 *d.* per week per ſheep	0	3	4
Expences	0	6	3¼
Produce	0	3	4
Loſs, 11 *s.* 9 *d.* per acre	0	2	11¼
The expences of my horſes, and wear and tear, this year, divided among all			
Carried over,	0	2	11¼

				l.	*s.*	*d.*
Brought forward, -				0	2	11¼
the work performed, is, for ploughing, 2 *s.* 4¾ *d.* per acre per earth : ſix at this rate, are	0	3	7			
The expences of harrowing four times, at 4½ -	0	0	4½			
				0	3	11½
Total loſs, 1 *l.* 7 *s.* 7 *d.* per acre - - - - -				0	6	10¾

Account of the hoed rood.

Expences.

	l.	*s.*	*d.*
Six ploughings — —	0	1	6
Four harrowings —	0	0	1½
Seed — — — —	0	0	4
Sowing — — —	0	0	0¾
Two hand-hoeings, at 7 *s.* per acre — — —	0	3	6
	0	5	6¼
Rent, &c. — — —	0	4	3
	0	9	9¼

Produce.

	l.	*s.*	*d.*
Keeping 40 ſheep 5 days, at 4*d.* as before - -	0	9	2
Expences — — —	0	9	9¼
Produce — — —	0	9	2
Loſs, 2*s.* 5*d.* per acre -	0	0	7¼
Ploughing and harrowing as before — —	0	3	11¼
Total loſs, 18*s.* 3*d.* per acre — — —	0	4	6

OB

OBSERVATIONS.

This trial is no great encouragement to cultivate coleſeed; but the year was very unfavourable, and had it been otherwiſe, determinate concluſions ought never to be the conſequence of ſingle, or a few experiments. Repeated trials, in various ſeaſons, and many ſoils, alone authoriſe abſolute deciſions.

The reaſon I ploughed up this crop, was my intention of not letting it ſtand for ſeed; had that been the deſign, it muſt not have been fed much later; and as I made this trial to diſcover the profit of feeding coleſeed, that is, for ſeed, I thought it neceſſary not to let it ſtand longer. I ſhould remark, that a ſecond feeding, in time for barley or oat ſowing, I know from obſervation to be a mere nothing.

Compariſon.

	l.	s.	d.
Loſs by the unhoed —	1	7	7
———————— hoed — —	0	18	3
Superiority per acre of the latter — — —	0	9	4

This proves ſufficiently the great benefit of the practice, beſides the cleaning the land, which is yet more. But I ſhould remark, that the hoeing, if it was a general practice, would be done much cheaper. Labourers always impoſe, when their work is uncommon.

EXPERIMENT, No II.

Culture, expences, and produce of four acres, 1765.

This field hangs to the north, and the ſoil is a ſtrong clay.

Culture.

The laſt crop was oats, the ſtubble of which was ploughed in October 1764, and the field well water-furrowed. In April 1765, it received the firſt Spring-ploughing. In May was ſtirred twice more, and harrowed once. June 19th, ploughed it again; July 1ſt again, and harrowed in the ſeed. The field was then well water-furrowed.

The exceſſive drought prevented the crop from riſing as it ought to have done, but yet the plants were more numerous than in ſome turnep fields adjoining. I was induced therefore, as the land had been well prepared, to let it ſtand.

January 24th, I turned into it fifty ſheep, and three two-year-old heifers; it kept them juſt three weeks.

Expences.

	l.	s.	d.
Six ploughings — —	1	4	0
Two harrowings — —	0	1	0
Two water-furrowings —	0	8	0
Seed — — — —	0	1	4
Sowing — — — —	0	1	0
	1	15	4
Rent, &c. — — —	3	8	0
	5	3	4

Produce.

Produce.

	l.	s.	d.
Keeping fifty ſheep three weeks at 4 *d.* — —	2	10	0
Ditto three young cattle at 1 *s.* 3 *d.* — —	0	11	3
	3	1	3
Expences — —	5	3	4
Produce — —	3	1	3
	2	2	1

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Ploughing at 2 *s.* 4¾*d.* —	2	17	6			
Harrowing, at 4½*d.* —	0	3	0			
				3	0	6
Loſs, 1 *l.* 5 *s.* 7¾ *d.* per acre				5	2	7

OBSERVATIONS.

The greatneſs of this loſs is certainly much owing to the dryneſs of the ſeaſon. But ſuch miſchances are never to occaſion a neglect of trials that are ſubject to them: all vegetables are liable to ſuch evils, and if one ſpecies withſtands the enemy better, upon the average of a long period than another, it is an advantage which ought by no means to be overlooked. Experiments, regiſtered only in favourable years, are uſeleſs, becauſe unfair.

The ſheep and young cattle, both affected this food much; but the latter not ſo ſoon as the ſheep.

EXPERIMENT, N° III.

Culture, expences, and produce, of half an acre, in two diviſions, 1766.

The ſoil the ſame as in the laſt experiment; and alſo the expoſure.

Culture,

In October 1765, the firſt ploughing was given; in March 1766, the ſecond; in April and May two more.

The firſt week in June harrowed it; again in the ſecond; ploughed it then for the fifth time, and ſowed it, and harrowed in the ſeed. The plants roſe extremely favourable. The 9th of July hand-hoed one rood for the firſt time; and again the 24th. The effect of theſe hoeings was ſtriking.

September 9th, viewed this experiment; the hoed part is as thick as the other, and much more luxuriant, but very few weeds, the other full of them.

March the 17th, herdled the diviſions, and fed them off with ſixty ſheep. The unhoed half laſted them ſix days. They were then turned into the other, which kept them juſt eight days. *N. B.* They were taken out of nights, and lodged in a ſmall paſture near the field.

Account of the rood commonly managed.

Expences.

	l.	*s.*	*d.*
Five ploughings — —	0	1	3
Three harrowings - -	0	0	1¼
Carried over - -	0	1	4¼

	l.	s.	d.
Brought forward —	0	1	4¼
Seed ——— ——— —	0	0	5
Sowing ——— —	0	0	0¾
	0	1	10
Rent, &c. — — —	0	4	3
	0	6	1

Produce.

Keeping 60 ſheep ſix days at 4*d.* — — —	0	16	10½
Expences ——— ———	0	6	1
	0	10	9½

Ploughing

	l.	s.	d.	l.	s.	d.
Ploughing, at 2s. 5¼d. -	0	3	0½			
Harrowing, at 4½d. -	0	0	3¼			
				0	3	3¾
Profit, 1*l.* 9*s.* 11*d.* per acre				0	7	5¾

Account of the hoed rood.

Expences.

	l.	s.	d.
As before — — —	0	1	10
Two hand-hoeings at 7*s.* and 6*s.*	0	3	3
Carried over, -	0	5	1

	l.	*s.*	*d.*
Brought forward, -	0	5	1
Rent, &c. - - - -	0	4	3
	0	9	4

Produce.

	l.	*s.*	*d.*
Keeping 60 ſheep eight days at 4*d.* per week	1	2	6
Expences — — —	0	9	4
	0	13	2
Ploughing and harrowing as before - - - -	0	3	3¾
Profit, 1*l.* 19*s.* 5*d.* per acre	0	9	10¼

COMPARISON.

		l.	s.	d.
Profit by the hoed	—	1	19	5
Ditto by the unhoed	—	1	9	11
Superiority of the former per acre	— —	0	9	6

OBSERVATIONS.

Theſe crops are both profitable, but the hoeing is evidently the ſuperior method in the crop itſelf, as well as in the benefit the land receives.

The ſheep are very fond of this crop, which agrees perfectly well with them; and the young lambs throve very much. I purpoſed keeping it longer, but wanted the land for barley, which ſhould never be delayed on any account.

A circumſtance happened relative to theſe crops, which is worth attention: An old ſow found her way to them before they were fed off, and viſited them every day, feeding very heartily, and coming regularly home at night; I let her alone, to obſerve the effect, which ſhewed the food to be very wholeſome and feeding; for ſhe throve well, and neglected her other food: this hint purſued further in another experiment.

EXPERIMENT, Nº IV.

Culture, expences, and produce of half an acre, in four diviſions, 1766.

This piece is in the ſame field as the laſt experiment. The ſoil and expoſure the ſame.

Culture.

The firſt ploughing was given in Autumn 1765. In March 1766, ploughed the next time. In April ploughed and harrowed; in May ploughed and harrowed. The firſt week in June ſtirred it again; the 27th again; and ſtruck it by this ploughing into four parts.

N° 1. Harrowed in the ſeed broadcaſt, for the common management.

Nº 2. Harrowed in the ſeed broadcaſt, deſigned for hand-hoeing.

3. Thrown on to five feet ridges, and drilled a double row one foot aſunder each.

4. Left flat, and drilled in equally diſtant rows two feet aſunder.

July 15th, hand-hoed, N° 2, 3, 4. The 21ſt, horſe-hoed N° 3. by throwing a furrow *from* the plants. The 23d, hand-hoed it again, ſetting the plants out eighteen inches from each other in the rows. Auguſt 6th, hand-hoed N° 2, 3, and 4. The 12th, horſe-hoed N° 3. again, throwing the mould to the plants. The 22d, another horſe-hoeing, reverſing the laſt. September 2d, another, throwing the earth back to the plants.

The end of March, I mowed N° 1. firſt, and ſpread the crop upon a piece of dry graſs land: I then, in purſuance of the Item I had in the laſt experiment, turned fifteen hogs about three parts grown into the field: they took at once to the coleſeed, and fed very heartily upon it. They were kept to it, and it laſted them juſt three days.

N° 2. Laſted them ſeven days.
3. ———— two days.
4. ———— five days.

The hogs throve very well on this food, and none of it was waſted.

Account of N° I.

Expences.

	l.	*s.*	*d.*
Six ploughings —	0	0	9
Three harrowings —	0	0	$0\frac{3}{4}$
Seed — — —	0	0	3
Carried over, - -	0	1	$0\frac{3}{4}$

	l.	s.	d.
Brought forward, -	0	1	0¾
Sowing — — —	0	0	0½
Mowing, carting, and ſpreading — —	0	0	5
	0	1	6¼
Rent, &c. — —	0	2	1½
	0	3	7¾

Produce.

	l.	s.	d.
Keeping 15 hogs three days at 3*d.* per hog per week	0	1	6¾

Expences

				l.	s.	d.
Expences - - - -				0	3	7¾
Produce - - - - -				0	1	6¾
	l.	s.	d.	0	2	1
Ploughing, at 2s. 5¼d. -	0	1	9¾			
Harrowing, at 4½d. —	0	0	1½			
Carting, at 6½d.	0	0	0¾			
				0	2	0
Loſs, 1*l.* 12*s.* 8*d.* per acre,				0	4	1

Account

Account of Nº II.

Expences.

	l.	*s.*	*d.*
As before — —	0	1	6¼
Two hand-hoeings at 5*s.* and 5*s.* 9*d.* — —	0	1	4
	0	2	10¼
Rent — — —	0	2	1½
	0	4	11¾

Produce.

Keeping 15 hogs 7 days -	0	3	9

	l.	*s.*	*d.*
Expences — — —	0	4	11¼
Produce — — —	0	3	9
	0	1	2¾
Ploughing, &c. as before	0	2	0
Loſs, 1 *l.* 5 *s.* 10 *d.* per acre	0	3	2¾

Account of N° III.

Expences.

	l.	*s.*	*d.*
Six ploughings — —	0	0	9
Three harrowings —	0	0	0¾
Carried over, -	0	0	9¾

	l.	s.	d.
Brought forward, -	0	0	9¾
Seed — — — —	0	0	1
Drilling, at 3½ *d.* —	0	0	0½
Three hand-hoeings at 3*s.* 6*d.* 3*s.* and 2*s.* 6*d.* -	0	1	1½
Four horſe-hoeings at 8*d.*	0	0	4
Mowing, carting, &c. -	0	0	4
	0	2	8¾
Rent — — — —	0	2	1½
	0	4	10¼

Produce.

				l.	s.	d.
Keeping 15 hogs 2 days				0	0	11¼
Expences - - - -				0	4	10¼
Produce - - - - -				0	0	11¼
	l.	*s.*	*d.*	0	3	11
Ploughing -	0	1	9¾			
Harrowing -	0	0	1½			
Drilling, at 3*d.* *	0	0	0½			
Carried over, -	0	1	11¾	0	3	11

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* I uſed Mr. Randal's drill plough, and in this charge do not include the repairs, which have

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Brought forward,	0	1	11¾	0	3	11
Horſe-hoeing, at 1 *s.* —	0	0	6			
Carting —	0	0	0¾			
				0	2	6½
Loſs, 2 *l.* 11 *s.* 8 *d.* per acre				0	6	5½

have in all my trials been ſo great, that it would be abſolutely unfair to inſert them; and yet it is not altogether the thing to make no charge of this ſort, and eſpecially as I have ſeen no drill plough (not excepting thoſe in the Society's room) but what would fall in pieces preſently, under the rough hands of ploughmen. Common ploughs are everywhere of a ſtrength proportioned to the hands they go through; and till a drill is diſcovered

Account of Nº IV.

Expences.

	l.	*s.*	*d.*
Six ploughings, - - -	0	0	9
Three harrowings - -	0	0	0¾
Seed - - - - - -	0	0	2
Drilling, at 4½ *d.* - -	0	0	0½
Carried over, - - -	0	1	0¼

covered that will bear ſuch treatment, it is impoſſible to promote the new huſbandry ; nor is it poſſible that any method ſhould be worth promoting, while the inſtruments with which it is executed remain in the predicament of all drill ploughs at preſent.

	l.	*s.*	*d.*
Brought forward, -	0	1	0¼
Two hand-hoeings, at 4*s.* 9*d.* and 5*s.* 3*d.* —	0	1	3
Mowing, carting, &c. -	0	0	5
	0	2	8¼
Rent — — — —	0	2	1½
	0	4	9¾

Produce.

	l.	*s.*	*d.*
Keeping 15 hogs 5 days	0	2	6

				l.	s.	d.
Expences — — —				0	4	9¾
Produce — — —				0	2	6
				0	2	3¾
Ploughing, harrowing, and carting, as in N° 1. —	0	2	0			
Drilling, at 3¾ *d.*	0	0	0½			
————				0	2	0½
Loſs, 1 *l.* 14 *s.* 2 *d.* per acre				0	4	4¼

RECA

RECAPITULATION.

		l.	s.	d.
Nº 1.	Broad-caſt unhoed, loſs per acre —	1	12	8
2.	Ditto, but hoed ditto	1	5	10
3.	Horſe-hoed ditto -	2	11	8
4.	Drilled in equally diſtant rows, ditto	1	14	2

From this view the comparative advantages (or rather diſadvantages) of theſe methods are pretty clearly ſeen.

OBSERVATIONS.

The ill ſucceſs of this experiment is to be attributed to more cauſes than one; the poverty of the crops in point of quantity, and the vegetable not being of that ſubſtantial nature which goes far in the feeding of the cattle: and yet I think 3 *d.* a-week a fair price for hogs that riſe when full grown to about ten ſtone (14 *lb.*). From viewing the field, I ſhould have thought the hoed broad-caſt crop would have turned out better; but it never carried near ſo good an appearance as

Experiment, N° III. But whatever idea is formed of Coleſeed in general from this trial, the comparative part of it is very deciſive: drilling is evidently an improper method to cultivate it; and horſe-hoeing exceſſively unprofitable, the expences being very great, and for worſe than no purpoſe. The beauty and luxuriance of the plants in theſe rows were great, but the ſuperior quantity of the others much more than ballanced this circumſtance.

EXPERIMENT, N° V.

Culture, expences, and produce of half an acre, in three diviſions, 1767.

The ſoil, expoſure, &c. the ſame as in the preceding experiment.

Culture.

This piece received its firſt tillage in October 1766. In November it was ſtirred again. The third earth was given in March; the fourth, the beginning of April; the fifth, the latter end of the ſame month, when it was harrowed. The 6th of May ploughed it and harrowed it again. Harrowed it again on the 16th. The 28th ploughed it again, ſtriking it into three parts, and harrowed all. The 29th, ſowed N° 1. with coleſeed broad-caſt. N° 2. with turneps broad-caſt.—— N° 3. was planted with cabbages, the Batterſea ſort, in rows four feet aſunder, and three feet in the rows, the plants of which had been raiſed in the garden.

June 15th, all three were hand-hoed. The 27th, horſe-hoed the cabbages, and hand-hoed the turneps and coleſeed again. July 18th, the ſecond horſe-hoeing. The 28th, the third. Auguſt 4th, hand-hoed them again. Auguſt 6th, the fourth horſe-hoeing. All three crops flouriſhed exceedingly. October 5th, cut them all, and weighed the produce.

		tons.	*cwt.*	*lb.*
N° 1.	weighed 17 *cwt.* or per acre — —	5	0	0
2.	—— 3 ton 13 cwt.	21	18	0
3.	—— 4 13	27	18	0

They were then given, upon a bare graſs field, to two large oxen, and two dry cows.

		l.	s.	d.
N° 1.	Laſted them two days, which, at 5*s.* a-week for the two oxen, and 3*s.* 6*d.* for the two cows, comes to 2*s.* 6*d.* or, per acre, - -	0	15	0
N° 2.	Laſted them a week, which, at the above prices, comes to 8*s.* 6*d.* or, per acre, -	2	11	0
N° 3.	Laſted them juſt a week and half, which, at the above prices,			

comes

	l.	*s.*	*d.*
comes to 1 *l.* 1 *s.* 3 *d.*			
or, per acre —	6	7	6

Account of Nº I.

Expences.

	l.	*s.*	*d.*
Seven ploughings —	0	1	2
Four harrowings —	0	0	1
Seed — — — —	0	0	2
Sowing — — —	0	0	0½
Two hand-hoeings at 6 *s.* and 5 *s.* per acre —	0	1	10
Mowing, carting, and ſpreading - - - -	0	0	6
	0	3	9½

Expences

	l.	s.	d.
Expences	0	3	9½
Rent, &c.	0	2	10
	0	6	7½

Produce.

	l.	s.	d.
Food as above	0	2	6
Expences	0	6	7½
Produce	0	2	6
	0	4	1½

	l.	s.	d.
Ploughing at 2 s. 5¼ d.	0	2	10
Carried over,	0	2	10

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Brought over,	0	2	10½	0	4	1½
Harrowing, at 4½ *d.* —	0	0	3			
Carting, at 6½ *d.*	0	0	1			
				0	3	2
Loſs, 2 *l.* 3 *s.* 9 *d.* per acre				0	7	3½

Account of N° II.

Expences.

	l.	*s.*	*d.*
Seven ploughings —	0	1	2
Four harrowings — —	0	0	1
Seed — — — —	0	0	1½
Sowing — — —	0	0	0½
Carried over, - - -	0	1	5

	l.	*s.*	*d.*
Brought forward, —	0	1	5
Two hand-hoeings, at 4 *s.* and 2 *s.* 6 *d.* — —	0	1	1
Drawing and carting, at 5 *s.* per acre — —	0	0	10
	0	3	4
Rent — —	0	2	10
	0	6	2

Produce.

	l.	*s.*	*d.*
Food as above — —	0	8	6
Expences — —	0	6	2
	0	2	4

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Ploughing -	0	2	10			
Harrowing -	0	0	3			
Carting, at $3\frac{3}{4}$ *d.* per load -	0	1	$0\frac{1}{2}$			
				0	4	$1\frac{1}{2}$
The above remainder -				0	2	4
Profit, 10*s.* 9*d.* per acre -				0	1	$9\frac{1}{2}$

Account of N° III.

Expences.

	l.	*s.*	*d.*
Seven ploughings —	0	1	2
Four harrowings — —	0	0	1
Seed, at 5 *s.* — —	0	0	10
Carried over, - - -	0	2	1

	l.	*s.*	*d.*
Brought forward, -	0	2	1
Digging the ſeed-bed and ſowing — — —	0	0	2
Planting, at 5 *s.* — —	0	0	10
Two hand-hoeings at 5 *s.* and 2 *s.* — — —	0	1	2
Four horſe-hoeings at 9 *d.*	0	0	6
Cutting and carting at 5 *s.*	0	0	10
	0	5	7
Rent, &c. — — —	0	2	10
	0	8	5

Produce.

Produce.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Food as above — —				1	1	3
Expences — — —				0	8	5
				0	12	10
Ploughing —	0	2	10			
Harrowing —	0	0	3			
Four horſe-hoeings at 1 *s.* 2½ *d.*	0	0	9½			
Carting, at 3¾ *d.*	0	1	5½			
				0	5	4
Profit, 2 *l.* 5 *s.* per acre —				0	7	6

COMPARISON.

	l.	*s.*	*d.*
Profit by cabbages - -	2	5	0
Loſs by turneps - - -	0	10	9
Cabbages the better by -	2	15	9
Profit by cabbages — —	2	5	0
Loſs by coleſeed — —	2	3	9
Cabbages better by —	4	8	9
Loſs by coleſeed — —	2	3	9
Ditto by turneps — —	0	10	9
Turneps better by —	2	14	6

OB

OBSERVATIONS.

The loſs on this turnep crop may ſurprize many members of the Society, but I believe the general idea of profitable crops (like moſt other *general* ideas in huſbandry) is often fallacious for want of accurate accounts. But I have raiſed much greater crops than this, and made them go much farther by ſtall feeding. The advantage in the improvement of the graſs field cannot be taken into the account.

Coleſeed makes a very indifferent appearance here. The cabbages did not near equal ſome other crops I have had at various times, but they are much ſuperior to the other vegetables.

All three crops would have improved, had they ſtood longer, (although they were ſown very early) but the compariſon remains the ſame. The cabbages, however, would have decayed ſooner than either of the others.

To diſcover which food was moſt agreeable to cattle, I took a cabbage, three turneps, and a bundle of coleſeed, and carried them to another cow, ſhe ſmelt of all, and then bit the turnep; next ſhe bit the cabbage, and eat it up; then ſhe eat up the turneps, and, laſtly, the coleſeed.

I do not offer this as any ſatisfactory account, but as a hint that ſhould be carried farther.

COROLLARIES *to be drawn from theſe Experiments.*

I. Coleſeed is a nouriſhing and wholeſome food, for oxen, cows, ſheep, and hogs.

II. The quantity of its produce (under the preceding management) is inconſiderable, and not, upon an average, ſufficient to anſwer the expences of culture.

III. The beſt culture is that of ſowing broad-caſt and hand-hoeing, as in the turnep-huſbandry; without hoeing it is much worſe, and drilled and horſe-hoed, naught.

IV. Turneps are much ſuperior in quantity and value of produce.

V. Cabbages are greatly ſuperior to it.

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ADDITIONAL REMARKS.

COLESEED is one of the moſt profitable common crops known in England; it may be therefore thought ſomewhat extraordinary that a premium ſhould be adjudged to a paper proving it good for nothing. Theſe circumſtances, apparently jarring ones, require a word or two in explanation.

The Society did not demand *in general* an account of the moſt profitable culture of the coleſeed, but expreſsly tied down the candidates, by adding the condition, *for feeding cattle and ſheep*. Thus was the culture of coleſeed in general, and the ſpecified application, two things, abſolutely different.

Coleſeed I have ſaid is a moſt profitable crop.——It is ſo: but not for feeding cattle; nor ſhould I have conceived that any perſons could have thought of comparing ~~it~~ with turneps in that light. The profit of the crop is the ſeed—which amounts to five times the value of any food for cattle that will ever be gained from it.

I have made enquiries in many parts of the kingdom concerning the culture; and I find, that the great object is every where the ſeed; that in moſt parts they have no idea of feeding it at all; and that in others where it is practiſed, they do it merely upon the ſame principle that wheat crops are fed off; the farmers are diſtreſſed for green food, and they turn their flocks into their wheat and coleſeed, (in many places abſolutely againſt their own judgment relative to the crop alone) not becauſe ſuch crops were ſown for the purpoſe, but their yielding food when the flock ſtarves.

Some very ſenſible farmers, long practiſed in the culture of coleſeed, with whom I have converſed on the ſubject, have aſſured me, that if it is fed when the food is wanted, that is after turneps are done, the crop of ſeed is vaſtly damaged by it; to a much greater amount than the value of the ſheep fed.

Some of them have told me, that they have fed off crops *earlier*, and they think the ſeed not the worſe. But this they mentioned as a doubt.

But if the plant be applied to the ſame uſe as turneps, and uſed at the ſame time, it is agreed throughout the kingdom that the culture is worthleſs, not producing near the quantity of food with that crop; nor paying in any reſpect ſo well.

Reſpecting the culture of coleſeed merely for food in April and May; that is, to ſucceed turneps, there is one ſtrong reaſon againſt it, which is its not producing a great weight of food per acre: I know both from my own and others experience, that the weight of food is trivial, compared to that of turneps and cabbages, &c. I will venture to ſay, not an eighth part. Conſequently much land muſt be appropriated to this uſe, and after the ſeaſon in queſtion, what crops of barley or oats will be gained? The ſowing will be in May; now it matters nothing to enquire into culture or any other circumſtances; it is clear enough that the Spring corn-crop is ruined by late ſowing. Hence ariſes the neceſſity of the Spring-food yielding a great quantity on a ſmall ſpace of land, that the farmer may experience this evil only in a ſmall degree: cabbages, which yield as much food on one acre, as ever coleſeed will on ſix, appear to come infinitely nearer the wiſhed-for mark.

The importance of gaining a Spring-food to ſucceed turneps is very great, and the kingdom is much indebted to the Society for giving this object their attention; but whatever may be the reſult, the point of a late ſowing of he Spring corn-crop ſhould never be forgotten; for if all or much of the barley and oat crops are ſown ſo late, vaſtly more will be loſt in one crop, than gained in the other. If therefore the food is an arable crop, it muſt be one that yields a great quantity per acre; and the beſt management in that caſe would be, to occupy a certain number of acres proportioned to the flock of ſheep *every year*, with the ſame plant. Suppoſe cabbages: one crop will be off juſt in time for getting the land ready to receive the plants of another.

Where buck-wheat is known, a late ſowing is no objection; but the plant is too confined an object to reaſon upon.

Thus much on the diſtinction between the culture of coleſeed *in general*, and the application of it to feeding cattle *in particular*. They are different matters, which ſhould never be ſubſtituted, the one for the other.—— Another point to be mentioned here is, the offering *unſucceſsful* trials to the Society.

It may perhaps be ſaid, that premiums are offered for *improvements*, and not for accounts of bad huſbandry. But I beg leave to differ from this opinion. If premiums are offered for the culture of vegetables not univerſally profitable, ſurely there is as much utility in ſaying, *where the culture is pernicious*; as, *where it is beneficial?* We may be allowed to ſuppoſe that ſo intelligent a Society would not offer premiums for a matter that *cannot* anſwer on any ſoil. But granting the ſpecified culture may anſwer on certain ſoils, is it not of uſe for every man to declare whether it is good or bad on his land? Is there not great utility in knowing that coleſeed for inſtance will not do on wet loams? Other people farming ſuch ſoils are thereby kept from uſeleſs expences. It appears juſt as uſeful to ſay experimentally, that turneps will not do on my loams, as to aſſert that wheat will do on my gravels. There cannot be a more futile idea than meaſuring the merit of experiments by their ſucceſs. ——The Society annually offer gold medals for accounts of horſe-hoed barley and oats—Will thoſe medals never be adjudged until ſucceſsful experiments are ſent?

FINIS.

G.R. III
BR. MUS.